

CLAIMS

1. An image display system which displays an image in a space where a seat is placed, said system comprising:

an image display device which is embedded in the seat and
5 which enlarges an internally displayed image and projects the enlarged image, as a virtual image, to eyes of a user from one surface exposed on a back side of the seat; and

an attaching unit operable to attach said image display device to the seat so that said image display device can rotate freely to
10 change an orientation of a display surface of said image display device which projects the virtual image.

2. The image display system according to Claim 1,
wherein said image display device includes a grip which can
15 be grasped by the user in order to carry out manual rotation.

3. The image display system according to Claim 2, further comprising
a rotating unit operable to rotate said image display device.
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4. The image display system according to Claim 3, further comprising:

a reclining angle detecting unit operable to detect a reclining angle of the seat; and

25 a rotation controlling unit operable to control said rotating unit so that the display surface of said image display device faces towards a predetermined position, based on a result of the detection performed by said reclining angle detecting unit.

30 5. The image display system according to Claim 4, further comprising

a display angle detecting unit operable to detect a display

angle of the display surface of said image display device with respect to the back side of the seat,

wherein in the case of judging, based on the result of the detection performed by said display angle detecting unit, that said image display device has been manually rotated by the user, said rotation controlling unit is operable to specify the predetermined position based on a display angle detected after the rotation, and to store the specified position, and

in the case of judging, based on the result of the detection performed by said reclining angle detecting unit, that the seat has been reclined, said rotation controlling unit is operable to control said rotating unit so that the display surface of said image display device faces towards the stored predetermined position.

6. The image display system according to Claim 5, wherein said image display device is embedded in a headrest of the seat.

7. The image display system according to Claim 5, wherein said image display device is embedded in a backrest of the seat.

8. The image display system according to Claim 7, wherein said image display device includes:
a displaying unit operable to display an image on one surface;
and
a convex lens which creates a virtual image from the image displayed on said displaying unit.

9. The image display system according to Claim 8, wherein said convex lens is a Fresnel lens.

10. The image display system according to Claim 7,
wherein said image display device includes:
a displaying unit operable to display an image on one surface;
and

5 a plurality of lenses which create a virtual image from the
image displayed on said displaying unit.

11. The image display system according to Claim 7,
wherein said image display device includes:

10 a displaying unit operable to display an image on one surface;
a concave mirror; and

a semi-transmissive mirror, and
said displaying unit, said concave mirror and said

semi-transmissive mirror are placed so that (a) light of the image
15 displayed on said displaying unit strikes said semi-transmissive
mirror at a 45 degree-angle so as to be reflected off said
semi-transmissive mirror, (b) the reflected light is further reflected
off said concave mirror so as to pass through said semi-transmissive
mirror, and (c) the light which has passed through said
20 semi-transmissive mirror goes outside said image display device, as
a virtual image.

12. The image display system according to Claim 11,
wherein said image display device further includes:

25 a polarizing plate which transmits only a component of one
direction, as polarized light, from among components of incoming
light; and

a wave plate which rotates a polarization direction of the
incoming polarized light by only a 45-degree angle, and

30 said polarizing plate and said wave plate are placed so that
said semi-transmissive mirror is interposed between said concave
mirror, and said polarizing plate and said wave plate, and that said

polarizing plate is positioned on an outer side seen from said wave plate, in said image display device.

13. The image display system according to Claim 7,

wherein said image display device includes:

a displaying unit operable to display an image on one surface;

a concave semi-transmissive mirror; and

a semi-transmissive mirror, and

said displaying unit, said concave semi-transmissive mirror

and said semi-transmissive mirror are placed so that said concave semi-transmissive mirror is positioned between said displaying unit and said semi-transmissive mirror, and that light which has passed through said semi-transmissive mirror, out of light of the image displayed on said displaying unit, goes outside said image display device, as a virtual image.

14. The image display system according to Claim 7,

wherein said image display device includes:

a displaying unit operable to display an image on one surface;

and

a decentered concave mirror which decenters and reflects light of the image displayed on said displaying unit, and outputs the reflected light outside said image display device, as a virtual image.

15. The image display system according to Claim 7,

wherein said image display device includes:

a displaying unit operable to display an image on one surface;

and

a prism which receives light of the image displayed on said displaying unit, and outputs the received light outside said image display device, as a virtual image.

16. The image display system according to Claim 15 which is placed in a space in a car where the seat is a front seat.

17. An image display method of displaying an image in a space where a seat is placed, said method comprising:

a displaying step in which an image display device embedded in the seat enlarges an internally displayed image and projects the enlarged image, as a virtual image, to eyes of a user from one surface exposed on a back side of the seat; and

a rotating step in which a motor rotates the image display device so as to change an orientation of a display surface of the image display device which projects the virtual image.

18. The image display method according to Claim 17, further comprising

a reclining angle detecting step of detecting a reclining angle of the seat,

wherein in said rotating step, the motor rotates the image display device so that the display surface of the image display device faces towards a predetermined position, based on a result of the detection performed in said reclining angle detecting step.

19. The image display method according to Claim 18, further comprising:

a display angle detecting step of detecting a display angle of the display surface of the image display device with respect to the back surface of the seat; and

a storing step of, in the case where it is judged, based on the result of the detection performed in said display angle detecting step, that the image display device has been manually rotated by the user, specifying the predetermined position based on a display angle detected after the rotation, and storing the specified position,

wherein in said rotating step, in the case where it is judged, based on the result of the detection performed in said reclining angle detecting step, that the seat has been reclined, the motor rotates the image display device so that the display surface of the
5 image display device faces towards the predetermined position stored in said storing step.